

LLNL Environmental Restoration Division (ERD)  
Standard Operating Procedure (SOP)

**ERD SOP 4.2: Sample Control and  
Documentation—Revision: 6**



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## 1.0 PURPOSE

The purpose of this SOP is to describe the procedure for sample control and completion of required documentation to ensure traceable and defensible sample results.

## 2.0 APPLICABILITY

This SOP is applicable to ERD activities and those Operations and Regulatory Affairs Division activities performed by ERD that require sample control and documentation.

## 3.0 REFERENCES

- 3.1 LLNL Environmental Protection Department, EPD Quality Assurance Management Plan (QAMP).

## 4.0 DEFINITIONS

See SOP Glossary.

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## **5.0 RESPONSIBILITIES**

### **5.1 Data Management Team (DMT)**

The DMT is responsible for issuing logbooks and maintaining a record documenting all logbook transactions, as well as archiving completed logbooks, field logs, shipping forms, and Chain-of-Custody (CoC) forms.

### **5.2 Field Personnel**

Field personnel are responsible for following this procedure when sample control and documentation are required.

### **5.3 Sampling Coordinator (SC), Drilling Coordinator (DC), or Subproject Leader**

The SC, DC, or SL's responsibility is to coordinate and schedule sampling activities, ensuring that all activities are recorded in a Document Control Logbook and that sampling data sheets and CoCs are completed correctly.

## **6.0 PROCEDURE**

### **6.1 Issuance and Archival of Logbooks**

Document Control logbooks are to be bound with consecutively numbered pages. DMT assigns each logbook a unique code and issues the logbooks upon request. A list of issued logbooks and their locations is maintained by the DMT. Completed logbooks are to be returned to DMT for archival.

### **6.2 Sampling Document Control Logbooks**

Entries in the sampling Document Control Logbooks should reflect the sampling event as accurately as possible (examples of sample entries can be found near the front cover of each logbook) and include the following essential information:

- Date and time of sampling.
- Sample identification (ID) code.
- Method of sample collection, including preservation techniques, size or volume, description of the matrix of the sample, and any deviations or anomalies noted.
- Requested analysis and analytical lab performing the analysis.
- Condition of sampling site relevant to sample validity when applicable.
- Results of associated field measurements.
- Calibration information pertaining to field instruments used for the sampling event.
- ID of field personnel performing the work.
- ID of field equipment (model number, serial number).

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- Special notes of other activities in the area which may have an impact on analytical results.

Note: Logbook entries should be made in indelible ink. Any changes/corrections made to logbook entries should have a single line thorough it with the date and initials of the personnel making the changes. DO NOT white out or remove pages from logbooks! Blank space should be lined out and initialed.

### 6.3 Treatment Facility Document Control Logbooks

Entries in the Treatment Facility Document Control Logbooks should reflect the activities and events that take place in and around the Treatment Facility including but not limited to the following:

- Date and time of activity or event.
- ID of personnel performing work.
- ID of equipment used to perform activities (i.e., organic vapor analyzer, thermohydrocarbon analyzer).
- Calibration information as needed per SOP 4.8, “Calibration/Verification and Maintenance of Measuring and Test Equipment (M&TE).”
- Recording of Facility Data as requested.
- Treatability Test Information.
- Analytical laboratories utilized, type of sample, etc.

Note: Logbook entries should be made in indelible ink. Any changes/corrections made to logbook entries should have a single line thorough it along with the date and initials of the personnel making the changes. DO NOT white out or remove pages from logbooks! Blank space should be lined out and initialed.

### 6.4 Field Data Collection Forms

- 6.4.1 Specific field data collection forms are often used during sampling activities. Each data collection form initiated during sampling becomes a controlled document and receives a document control number. The document control number is derived from the logbook code and the Document Control Logbook page number that was used to document that sampling event. For example, a ground water sample that has sampling information recorded in logbook AH, page 23, would be assigned CoC document control number AH023. Do not hyphenate and always use five or more places.
- 6.4.2 The Ground Water Sampling Data Sheet (Attachment C in SOP 2.1) is used during sampling activities. The Borehole/Well Construction Log (SOP 1.1, Attachment A) is used during drilling activities. Complete the forms as described in the appropriate SOP.

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## 6.5 Chain-of-Custody (CoC) Record

The primary objective of using a CoC (Attachment A) is to create an accurate written record that can be used to trace the possession and handling of the sample from the moment of its collection through analysis and receipt of data. The CoC is a legal document.

### 6.5.1 Issuance and Archival of CoCs

- Blank CoCs are obtained from DMT.
- Completed CoCs are archived by DMT.

### 6.5.2. Required Documentation

The CoC should be completed as follows, using waterproof ink:

- Assign a document control number as described in Section 6.4.1.
- Sample matrix. Sample matrix codes are listed on the back of the CoC.
- Name of sampler and employer.
- Requested analysis code. The requested analysis code is listed on the Sampling Plan if the code is not listed, contact SC/DC/SL for the appropriate code.
- Number and type of container(s).
- Sample ID and sample date/time. The sample ID is listed on the Sampling Plan/Work Plan. If sample ID is not known, contact DMT for the correct naming convention.
- Study area/operable unit from which sample originated.
- The analytical laboratory name. This is the laboratory where samples are to be sent as designated by the Sampling Plan.
- Individuals requiring facsimile (fax) or electronic mail (e-mail) results. DMT is automatically indicated on the CoC. Two other individuals may also be indicated.
- Requester name. This is the organization samples are being collected for.
- Additional information/instructions or remarks. The remarks section should also indicate whether field filtration and preservation has been performed, or if it is required upon receipt at the lab. If filtration or preservation is required, use the requested analysis code: FILTER.
- Requested turnaround time. Standard TAT is 20 days. If a faster TAT is required, check with the QC Chemist or laboratory for available TATs. A separate CoC should be completed for each different turnaround time specified.



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- LLNL account number. The appropriate account numbers are provided by the SL or SC.
- Critical or Clean well note. The analytical laboratory should be instructed in the remarks section of the CoC form to verify any detections in the critical or clean sampling locations as listed in the Sampling Plan and contact the appropriate ERD personnel immediately.
- The appropriate relinquishing and receipt signatures. When the samples are relinquished, the CoC is signed by the sampler. The CoC pink copy along with the courier signature is left in the Lock Box to be picked up by the DMT. The samples may also be hand carried to the SC, delivered to an on-site laboratory, or to the LLNL Shipping Department. The CoC pink copy is retained by the field personnel and given to DMT when shipping samples through the LLNL Shipping Department (See SOP 4.4, “Guide to Handling, Packaging, and Shipping of Samples”).

**Note:** Prior to shipment or delivery of samples, a copy of the completed CoC must be mailed or hand-carried to the Technical Release Representative (TRR) and SC. The DMT receives the pink copy.

## 6.6 Shipping Forms

When the analytical laboratory is paying for shipment (via a courier or Federal Express) of samples classified as non-hazardous, an ERD Shipping Form (see SOP 4.4, Attachment C) attachment must be filled out completely. The ERD Shipping Form consists of two pages. One page must be sent to the LLNL Traffic Office and the other to ERD’s DMT. Samples meeting the Department of Transportation (DOT) definition of hazardous materials and/or that require LLNL to pay for shipping (via Federal Express), must go through the LLNL Shipping Department and an LLNL ShipIt form must be generated (see SOP 4.4, Attachment B) to accompany the samples. The shipping of samples is described in ERD SOP 4.4.

## 6.7 Sample Identification Labels

Use ID labels when tagging or labeling sample containers. The sampling personnel may fill out sample container labels after collecting samples or prior to collecting samples at each location. However, extreme care must be taken to ensure that the container label corresponds to the correct location! Waterproof ink must be used on the label.

### 6.7.1 Issuance and archival

Sample labels may be obtained from the analytical laboratory where the samples are to be sent. The SCs/field personnel should have a small stock on-hand at all times. Labels are not archived and are destroyed with sample disposal at the laboratory.

### 6.7.2 Required Documentation

The Sample ID Label must include the following information:

- Sample ID. The sample ID can be made up from the combination of various factors such as location, sample type, etc. The DMT’s Monitoring Database Location Table contains all sample IDs previously used. The table is continuously updated. If a new location is to be sampled or an experiment is to

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be conducted, the DMT must be consulted and approve all new sample IDs. The new names will be added to the Location Table.

- Project name.
- Sample date. The date when the sample was collected.
- Sample time. Time is recorded according to the 24-h clock (e.g., 1:00 a.m. to 11:00 p.m., 3:00 p.m. to 5:00 p.m.).
- Samplers' initials. The initials of personnel conducting the sampling.
- Preservation method. Any preservative added to the sample should be indicated.
- Comments. Any additional information.
- Requested analysis. The type of analysis to be performed on the sample. (Optional)

## 7.0 QA RECORDS

- 7.1 Chain-of-Custody forms
- 7.2 Document Control Logbooks
- 7.3 Ground Water Sampling Data Sheets
- 7.4 Borehole/Well Construction Logs

## 8.0 ATTACHMENT

Attachment A—Example Chain-of-Custody Form

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## **Attachment ☐ A**

### **Example Chain-of-Custody Form**

# ERD Chain-of-Custody Record and Analytic Instructions

**A**

Sampled By : \_\_\_\_\_

Sampler's Employer: \_\_\_\_\_

Project Name : \_\_\_\_\_

Analytical Lab Please  
Fax or Email copies to:

Requester, (circle one)

**S300****WGMG****Livermore****Send all results to:**Attn: ERD DMT L-528  
Lawrence Livermore  
National Laboratory  
7000 East Ave.  
Livermore, CA 94550

Field Log Book# \_\_\_\_\_ Page \_\_\_\_\_ of \_\_\_\_\_

LLNL Acct. # \_\_\_\_\_ Release # \_\_\_\_\_

Analytical Laboratory Name \_\_\_\_\_

Analytical Laboratory Log # \_\_\_\_\_

name \_\_\_\_\_ Fax# 925-422-6950 / Email \_\_\_\_\_

name \_\_\_\_\_ Fax# 925-422-6950 / Email \_\_\_\_\_

**\* Analytical Lab, when Email is requested always Email ERD\_DMG !**

Sample Identification		Sample Date/Time	Matrix <sup>2</sup> Container <sup>3</sup>	# of Cont.	Study Area	Analysis & Turnaround Required <sup>1</sup>										Additional Instructions to Lab	
																	* Remarks *
	1																
	2																
	3																
	4																
	5																
	6																
	7																
	8																
	9																

Signature	Company	Time	Date
Relinquished by			
Received by			
Relinquished by			
Received by			
Relinquished by			
Received by			

**1** Enter the number of days or hours for TAT of the official printed report. See Requested Analysis code list for available TAT's for each type of analysis. Example: 24h = 24 hours / 20d = 20 day

**2** Sample Matrix Codes: **See list on back of pink copy**

**3** Container type codes: **V** = VOA Bottle, **P** = Polyethylene Bottle,  
**G** = Glass Bottle, **T** = Brass Tube,  
**B** = Bag, **S** = Stainless Steel Tube,  
**O** = Other (specify under remarks)

Revision 4.7  
26-sept-00 ERD**White : Laboratory return to ERD**  
Attn. ERD Data Management Team L-528**Yellow : Analytical Lab****Pink: Sampler leave with ERD**  
Attn. ERD Data Management Team L-528**Gold: Sampler Leave with TRR**

To receive copies of this data from DMG

CC: